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June 16, 1998

Magalie Salas
Secretary
Federal Communications Commission
Room 222
1919 M Street N.W.
Washington, D.C. 20554

Dear Ms. Salas:

The State of New York, Division of State Police, respectfully requests that the attached late filed comments be accepted for consideration in the matter of RM-9274, "Petition of the National Public Safety Telecommunications Council for Further Rulemaking to Allocate Spectrum in the 138-144 MHz Band for Public Safety".

If you have any questions regarding this matter, please contact Mr. Robert F. Schlieman, State Police Radio Engineer, by telephone at (518) 457-9478, by fax at (518) 457-5676, or by E-mail at "rschliem@troopers.state.ny.us".

Thank you for your consideration in this matter.

Sincerely,

James W. McMahon
Superintendent

Attachment - Comments in RM-9274

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List A B C D E

Before the

FEDERAL COMMUNICATIONS COMMISSION

Washington, D.C. 20554

In the Matter of	)	
	)	
Petition of the National Public Safety	)	
National Public Safety Telecommunications	)	
Council for Further Rulemaking to Allocate	)	RM-9274
Spectrum in the 138-144 MHz Band for Public	)	
Safety	)	

To: The Commission

I. INTRODUCTION

1. The State of New York, Division of State Police, otherwise known as the New York State Police (NYSP) hereby submits the following comments in support of this petition for rulemaking, filed by the National Public Safety Telecommunications Council, to allocate spectrum in the 138-144 MHz band for public safety.

2. NYSP was created in 1917 as a full service police agency. Today it has an authorized strength of 4,235 sworn officers and 700 civilian support staff. NYSP operates a statewide VHF highband radio system and an 800 MHz multisite simulcast digital trunking system covering the New York City Metropolitan Area, and supports many other federal and local law enforcement agencies. NYSP has been designated the lead agency for matters of radio communications in New York State (NYS), and is currently engaged in the planning stages for a new

technology statewide radio system, which is intended to serve all agencies of the State who require private land mobile radio communications.

II. BACKGROUND

3. The Public Safety Wireless Advisory committee (PSWAC), formed by the Federal Communications Commission (FCC or Commission) and the National Telecommunications and Information Administration (NTIA), made the following three spectrum reallocation recommendations,[1] only one of which as been addressed to any extent by the Commission:

- 2.5 MHz immediately to address interoperability needs in the VHF and UHF band between 138 MHz and 512 MHz (see Final Report at page 21, Section 2.2.1)
- 25 MHz in the "short term"
- An additional 70 MHz by 2010.

The Commission's only response to date has been to allocate 24 MHz in the 746-806 MHz band for public safety. Neither the FCC nor NTIA have yet to identify 2.5 MHz of spectrum for interoperability between 138 MHz and 512 MHz. Furthermore, the 24 MHz in 746-806 MHz, while extremely beneficial, will not

[1] PSWAC was formed to study current and future public safety communications requirements through the year 2010. PSWAC was led by a Steering Committee of prominent members of the public safety community, including the Director of the FBI, the Undersecretary of Commerce, the New York City Police Commissioner, the Chief of the Los Angeles County Fire Department and others. The principal work of PSWAC was conducted within five subcommittees on operational requirements, technology, interoperability, spectrum requirements, and transition. The yearlong effort resulted in over 800 pages of findings, recommendations and supporting documentation.

address many of the spectrum requirements of the thousands of current VHF highband public safety users.

4. The National Law Enforcement and Corrections Technology Center – Rocky Mountain Region (NCLECTC-RM), recently completed a very thorough study of interoperability amongst law enforcement agencies across the country. One result of that NIJ sponsored report, NJC 168961, was that 73% of all law enforcement agencies use VHF highband radio channels for public safety communications.

5. Title III of the Balanced Budget Act of 1997 requires NTIA to identify 20 MHz of spectrum below 3 GHz for reallocation by the FCC for commercial services through auctions. However, Title III, in Section 3002 (c)(2), also requires that "in making available bands of frequencies for competitive bidding," the Commission shall "consider the needs of existing public safety radio services."

6. NTIA's response to the Balanced Budget Act of 1997 includes the release of 3 MHz in the VHF band at 138-144 MHz (139.0-140.5 MHz and 141.5-143 MHz).[2] That spectrum is currently used by the Department of Defense and the Federal Emergency Management Agency, which will relocate most of their operations by 2008.

[2] U.S. Department of Commerce, National Telecommunications and Information Administration, "Spectrum Reallocation Report: Response to Title III of the Balanced Budget act of 1997," NTIA Special Publication 98-36 (February 1998).

III. THE 138-144 MHz BAND IS NEEDED FOR PUBLIC SAFETY WIDE AREA COMMUNICATIONS SYSTEMS AND FOR INTEROPERABILITY/MUTUAL AID.

7. This 3 MHz of spectrum is particularly well suited for wide area public safety communication systems. As noted in the NIJ report, three out of every four law enforcement agencies presently operate in VHF highband. Radio equipment is available to permit operation throughout 138 – 174 MHz.

8. The development of statewide shared radio communication infrastructures will, by its very nature, significantly improve interoperability. When agencies at all levels of government, from Federal to State and Local, operate on a common radio communication infrastructure, the ultimate in interoperability is achieved. Using trunking technology, users would be separated into talk groups, however, when communication between talk groups is required, selecting common talk groups would permit instant communication. Such interoperability is required when incidents occur like the ice storm which devastated the northeastern states last winter. In that incident, federal, state and local forces came together to preserve pubic safety, open the roads, provide emergency supplies and to assist the local population in coping with the effects of the storm, which included communication difficulties for the emergency service providers themselves.

9. A portion of this spectrum can be set aside as dedicated channels for Mutual Aid events where conventional mode operation using either digital or analog communications can take place. Presently, only a few mutual aid channels are

available for some, but not all, public safety radio services in VHF highband[3] Additional channels for mutual assistance can be provided in a portion of this 3 MHz of spectrum, where it will be readily available to all public safety[4] and public service radio services.

10. A portion of this spectrum (two - 0.25 MHz base and mobile frequency blocks), configured in channel pairs for repeater operation, are recommended to be allocated as two (2) coordination channels (open to Public Safety & Public Service), two (2) EMS channels, two (2) Fire channels, two (2) Law Enforcement channels, two (2) Public Safety/Public Service shared channels, five (5) tactical channels, five (5) simplex frequencies for public safety tactical operations, and five (5) simplex frequencies for Public Safety/Public Service shared tactical operations.

11. The NTIA Spectrum Reallocation Report notes that the Department of Justice and the Department of Treasury oppose the reallocation of the 138-144 MHz band, in part because it will prevent the Federal Government from pursuing proposals to share portions of the band with state and local governments for wide area public safety systems.[5] Such a sharing arrangement was recently announced with the State of Wisconsin, and has been considered for other regions where there is not extensive Federal Government use of the band.

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[3] Public Safety Wireless Advisory Committee, Appendix C – ISC Final Report Appendix B.
[4] Public Safety Radio Services as defined in the Public Safety Wireless Advisory Committee Final Report Appendix C – Interoperability Sub-Committee Final Report Section 3.1.
[5] Id. at 3-11.

12. We favor such arrangements, and share the concerns of the Justice and Treasury Departments. We urge that the spectrum be allocated by the FCC for public safety use, and not for commercial use through auctions. Such an allocation for public safety will also further the goals of the Justice and Treasury Departments of improving interoperability and overall public safety radio communications.

13. If the Administration is to further its expressed goals of developing a National Information Infrastructure, with a Public Safety Wireless Network to support shared federal, state and local communications interoperability, it is essential that this spectrum in the 138-144 MHz band be allocated to public safety.

IV. 138-144 MHz BAND WOULD REDUCE TOWER SITE CONSTRUCTION IN WIDE AREA SYSTEMS.

14. Many states are currently engaged in the development of new technology wide area shared use systems. In order for such systems to operate efficiently, they must employ trunking technology. The use of trunking technology requires that a common control channel transmit a continuous stream of digital control information. Present VHF highband channel assignments frustrate such operation because of interference to other systems with incompatible base and mobile frequency operations.

15. Present VHF highband channels allocated to public safety do not afford uniform base and mobile frequency pairing, which is characteristic of the present UHF and 800 MHz bands. When channels are available with uniformly paired base and mobile transmit frequencies, efficient repeater operation is possible and maximum

spectrum efficiency is achieved because systems can be located closer without interference. In VHF highband, half duplex and repeater operations by distant base stations transmitting on a system's mobile channel, cause harmful receiver capture interference – particularly at mountain top receiver sites.

16. In the Commission's attempt to refarm the spectrum, it elected not to change the channel plan for VHF highband so that public safety operations would have uniformly paired half duplex and repeater operation channels. By using this 3 MHz portion of spectrum, two blocks of 1.5 MHz can be provided for base and mobile paired transmit frequencies, with 1 MHz separation for duplexer operation. As noted above, a portion of this spectrum can be designated for interoperability/mutual assistance channels, including simplex tactical channels.

17. NYS is currently studying the radio site coverage requirements for statewide radio communication in the various candidate public safety radio spectrum bands – VHF Highband, UHF and 700/800 MHz. The propagation characteristics of each band as they relate to the heavy foliage and various types of mountainous terrain of New York State clearly indicate that VHF highband is the radio band of choice for this statewide radio system.

18. Using VHF highband, approximately 100 tower sites are required for statewide coverage. Preliminary field tests, to corroborate computer predictions, indicate that 700/800 MHz statewide coverage will require approximately 3 to 4 times as many sites.

19. Radio site development is expensive, with an estimate of $1 million per site to acquire, plan, construct and equip. This would result in an expenditure of 200 to

300 million dollars more than a VHF system, which would have to be paid by the taxpayers of the state.

20. New site development is a particular problem from a Zoning and Environmental Impact standpoint. In recent years, tower construction conflicts with Zoning bodies have increased to staggering proportions, to the point that the Commission has attempted to intervene in the local Zoning process.

21. Significant portions of New York State are limited by Constitutional and State Law protection of wild forest land[6] from any kind of manmade construction, most notably the mountain tops which represent scenic views.

V. REFARMING ADVANTAGES

22. In addition to improving the interoperability requirements identified by PSWAC, as well as facilitating the development of new-technology public safety radio communication systems, the Commission's goal of refarming the radio spectrum will be significantly advanced by transfer of this spectrum to public safety.

23. Technology has advanced over many decades of time, and original simplex operations have migrated to repeater operation. Channels are not arranged on a consistent spacing between base and mobile transmit frequencies. Interference between mountain top base transmitters of one system and mountain top receivers of another system on the same frequencies have developed, reducing the effective

[6] NYS Constitution Article XIV, covering both the Adirondack and Catskill forest preserves, which cover in all some 2.6 million acres of state lands in twelve Adirondack counties and four Catskill counties. NYS Executive Law Article 27, Environmental conservation Law Article 8and NYCRR 617, et al. set forth rules and regulations regarding the use of state land.

re-use of channels in this band. In order to correct this condition, channels will have to be returned to the FCC for refarming.

24. By providing "green space" in the form of this 3 MHz of spectrum, various governmental radio operations can be migrated to new statewide shared systems. The old channels can be returned to the Commission for refarming. It is essential that governmental operations be maintained during any transition from an old system to a new system. This transition can be facilitated by use of new radio equipment, which can operate over the entire 138-174 MHz frequency band, allowing for continued operation of all or part of some systems while others are moved to the new system.

VI. RECOMMENDATIONS

25. The radio spectrum 139.0 – 140.5 / 141.5 – 143 MHz should be allocated to Public Safety Radio Services for statewide shared user infrastructure system development, primarily for trunked operation, and for interoperability/mutual assistance conventional channel operation.

26. The channels should be paired so that one block is assigned to base station transmit use, and the other block is assigned to mobile station transmit. Mobile station transmit on the base station frequency should be permissible for talk-around operation, and for simplex tactical operation.

27. The channels should be assigned in 12.5 kHz channel spacings with a necessary emission bandwidth of 11.25 kHz centered in the channel.

28. Channels should be allowed to be aggregated for wideband digital operation as long as the basic spectral efficiency of 0.768 bits/second/Hz is achieved.

29. To ensure true interoperability, conventional channel operations employing digital emissions should be required to comply with ANSI/TIA/EIA 102BAAA as the common air interface, and voice encoding/decoding should be required to comply with ANSI/TIA/EIA 102BABA. Without such standards, there will be no interoperability between units of different systems for the foreseeable future.

30. We recommend that this spectrum in particular should be licensed only to state governments on an exclusive basis within the state, and be coordinated for maximum re-use both within a state and between states. Frequency coordination should be in accordance with the methodology established by TIA TSB-88, in the same manner that, in 47 CFR 101.105(c), the Commission requires microwave applicants to follow the '[g]uidelines for applying the interference protection criteria for fixed stations . . . are specified in the Telecommunications Industry Association's Telecommunications Systems Bulletin TSB 10, "Interference Criteria for Microwave Systems" (TSB 10).'

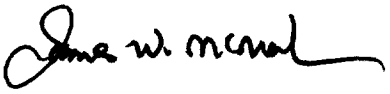
31. State Mutual Aid Plans should be required, where the state holds the FCC license and authorizes entities operating within the state to use channels in accordance with the plan's operating procedure protocols. This type of operation is presently used in the State of California with great success.

VII. CONCLUSION

As identified above, it is essential that 3 MHz of spectrum from the 138-144 MHz band not be auctioned to commercial services, but rather be allocated to public safety services for statewide shared user infrastructure development and for interoperability/mutual aid. The Commission should take all necessary steps, including seeking Congressional guidance if necessary, to secure an allocation of this spectrum for public safety operations.

Respectfully submitted,

State of New York, Division of State Police

By: 

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